REMARKS

Applicant acknowledges receipt of the *Office Action* dated January 11, 2006 wherein claims 1-10, 31-56 and 62-71 were rejected under 35 U.S.C. § 102(b); and claims 2, 32-36 and 62-70 were rejected under 35 U.S.C. § 103(a).

Status of the Claims

Claim 1 has been canceled.

Claims 2-9, 31, 32, 34-39, 41-43, 45-47, 49, 50, 53 and 54 are currently amended.

Claim 62 was previously presented.

Clams 10, 33, 40, 44, 48, 51, 52, 55, 56 and 63-71 are in original form.

Claims 11-30 and 57-61 have been withdrawn from consideration.

Previous Restriction Requirement

The *Office Action* notes the Applicant's election of the species corresponding to Figure 4 for prosecution on the merits, and the Patent Office requests a listing of any claims readable on Figure 4. In response, Applicant respectfully submits that independent claims 2, 62 and 71 are each readable on the species of Figure 4. In addition, dependent claims 3-10, 15-20, 24-26, 29-56, 61 and 63-70 are each specifically readable on the species of Figure 4.

The Patent Office has withdrawn from consideration non-elected claims 11-30 and 57-61 directed to other species identified by the Patent Office. However, Applicant reserves the right to prosecute such claims in the current application upon the allowance of a generic claim, or in a later-filed divisional or continuation application.

Claim Rejections under 35 U.S.C. § 102(b) in view of Simmons

The Patent Office maintains the rejection of claims 1, 3-10, 31, 37-56 and 71 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. Re. 35,866 to Simmons (hereinafter *Simmons*). *Simmons* discloses a fountain system that produces changing water displays using nozzles 20, 26, 30, 35. A valve 40, 40A, 40B with an internal valve element 46, 46A controls

and varies the distribution of water flow to the nozzles. Referring to Figures 4 and 5, one embodiment of the valve 40 comprises a cylindrical valve body 41 that is open at one end 40b and includes coaxially aligned outlet pairs 42, 43, 44, 45. Each outlet 42-45 of the valve body 41 is connected to a nozzle supply conduit, such as conduits 23, 24 of nozzle 20 as shown in Figure 1. A valve element 46 with a plurality of lateral openings 47, 48, 49, 50 fits snugly within the valve body 41 and includes an open end 46a that receives the pressurized fountain liquid (col. 4, lines 4-19). A valve stem 52 extends upwardly from the valve element 46 through the upper end 40a of the valve body 41. A first motor 56 rotates the valve element 46, and a second motor 65 moves the valve element 46 axially via the valve stem 52 (col. 4, lines 34-67). In operation, as the motors 56, 65 impart rotation and linear axial movement to the valve element 46, the lateral openings 47-50 are moved into periodic fluid communication with one or more pairs of the valve outlet ports 42-45 to control and vary the distribution of the fountain liquid to the nozzles (col. 1, lines 51-57). Thus, the timing and amount of liquid delivered to the different nozzles varies to produce constantly moving images (col. 1, lines 57-67).

Claims 1, 3-10, 31, 37-56

With respect to the rejection of claims 1, 3-10, 31, 37-56, the Patent Office takes the position that *Simmons* clearly supports the recitation that "... rotating the selective interrupter proportionally transitions a flow relationship between a first flow path and a second flow path" because *Simmons* discloses that the "... axial rotation of valve element 46A increases the pressure flow in one branch of a dual nozzle as it decreases the pressure flow in the other branch ...". Applicant respectfully disagrees with the assertion that a flow relationship necessarily transitions proportionally from a first flow path to a second flow path simply because pressure flow increases in one branch as it decreases in the other branch. Instead, the flow relationship could transition non-proportionally by increasing in one branch faster or slower than it decreases in the other branch, and such disparity would occur in the *Simmons* valve due to the different shapes and sizes of the valve element openings 47-50 and the valve body outlets 42-45, as well as the quantity of such openings 47-50 and outlets 42-45.

Nevertheless, in the interest of furthering prosecution, Applicant has rewritten dependent claim 2 in independent form by incorporating the limitations of independent claim 1, thereby obviating the substantive rejection of claim 1 in view of *Simmons*. Claims 3-10, 31 and 37-56

have also been amended, as necessary, to depend from independent claim 2. Accordingly, Applicant respectfully submits that at least because independent claim 2 is patentable over *Simmons*, dependent claims 3-10, 31 and 37-56 are also patentable over *Simmons*.

Claim 71

The Patent Office maintains the rejection of independent claim 71 as anticipated by *Simmons*. As set forth in MPEP §706.02(IV), in order for a reference to anticipate the invention as claimed, the reference must disclose each and every element recited in the claim. Applicant respectfully submits that *Simmons* fails to anticipate independent claim 71 at least because *Simmons* does not disclose a valve for protecting an aircraft instrument ... wherein rotation of a selective interrupter redirects, without interrupting, a pneumatic flow to the instrument according to claim 71. First, the *Simmons* valve 40 does not redirect a pneumatic flow to an ***aircraft instrument*** as specifically recited in the body of claim 71. Instead, the *Simmons* valve 40 redirects a water flow between different nozzles that project the water into the air in a fountain display. Second, rotation of the *Simmons* valve element 46 within the valve body 41 will interrupt the flow. Specifically, because the valve element openings 47-50 and the valve body outlets 42-45 have non-uniform shapes and sizes, and the valve element 46 includes solid portions between the openings 47-50, flow interruptions will occur as the valve element 46 redirects the water to different outlets 42-45. *Simmons* states that rotation of the valve element "periodically" positions the valve element openings in fluid communication with the valve outlet ports (col. 1, lines 51-55). *Simmons* also describes "an instantaneous flip-flop of the nozzle dispersal stream" (col. 5, lines 12-13), which will momentarily interrupt flow. Accordingly, independent claim 71 is not anticipated by *Simmons* because *Simmons* fails to disclose each and every element recited in claim 71, and in particular, fails to disclose a valve wherein rotation of the selective interrupter redirects, without interrupting, a pneumatic flow to an aircraft instrument.

Claim Rejections under 35 U.S.C. § 102(b) in view of McPherson

Claims 2, 32-36 and 62-70 stand rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,265,335 to McPherson (hereinafter *McPherson*). *McPherson* discloses a device for automatically controlling and adjusting variations in the pitch attitude of an aircraft.

A sensing device 21 with an external casing 23 houses a gyro wheel 31 mounted for spinning movement on a shaft 33 (col. 2, line 66 to col. 3, line 2). The gyro shaft 33 is rotatably supported by a gimbal cage 35 (col. 3, lines 4-6). Fixed to the lower end of the gimbal cage 35 is a plate 43 that turns in response to rotation of the gimbal cage 35 during operation of the device (col. 3, lines 15-18). A drive pin 69 extends downwardly from the plate 43 (col. 3, lines 41-43). An air valve assembly is secured to the lower end of the casing 23 (col. 3, lines 55-60). The air valve assembly comprises a valve body 70 with a flat bottom 71, an upstanding wall 72, and a valve body cover 73 that encloses a rotatably mounted valve rotor 75 (col. 3, lines 60-66). The cover 73 includes an arcuate slot 83 which communicates with an aperture 85 in the rotor 75, and a crank pin 87 connected to the lower end of drive pin 69 extends into the rotor aperture 85 (col. 4, lines 4-14). Rotation of the plate 43 under turning of the gimbal cage 35 rotates the valve rotor 75 (col. 4, lines 15-16).

The valve 70 includes multiple air passages 91, 93 in the flat bottom 71 and multiple ports 95, 99, 104, 106 and branches 98, 102 in the valve wall 72. Various of these air passages, ports and branches are connected to atmospheric pressure, a vacuum source 65, or servo units 109, 113 (col. 4, lines 17-62). The servo units 109, 113 are connected by cables 115, 117 to an elevator 119 (col. 4, lines 68-73). As shown in Figure 8, the valve rotor 75 includes arcuate channels 121, 123 adapted to control communication between the ports and branches in the valve body wall 72 (col. 5, lines 3-8).

In operation, rotation of the valve rotor 75 changes the position of the arcuate channels 121, 123 and thereby changes the flow paths in the valve 70. Thus, both of the servo units 109, 113 may be in communication with the vacuum source 65 when the valve rotor 75 is positioned as shown in Figure 8 so long as the longitudinal axis of the aircraft remains parallel with its predetermined angle of flight (col. 5, lines 59-73). Or, when the aircraft deviates from the line of flight, the valve rotor 75 will rotate so that one of the servo units is in communication with the vacuum source 65 while the other is in communication with atmospheric pressure, such as when the valve rotor 75 is positioned as shown in Figure 10 (col. 6, lines 10-23). Then the actions of the servos 109, 113 are such that the elevator 119 moves to urge correction of the attitude of the aircraft (col. 6, lines 23-30).

The Patent Office rejects claims 2, 32-36 and 62-70 as being anticipated by *McPherson* on the basis that *McPherson* discloses a selective interrupter 75 rotatably supported within a valve body to valve a plurality of apertures and control the pneumatic flow source 65 and servo units 109, 113 to control the gyro wheel on the instrument panel.

As set forth in MPEP §706.02(IV), in order for a reference to anticipate the invention as claimed, the reference must disclose each and every element recited in the claim. Applicant respectfully traverses the rejection of claims 2, 32-36, and 62-70 at least because *McPherson* fails to disclose a valve comprising a hollow selective interrupter according to independent claims 2 and 62. Instead, the valve rotor 75 is a solid component comprising arcuate channels 121, 123 formed therein, as best depicted in *McPherson* Figure 3, Figure 6 and Figure 8. Accordingly, *McPherson* fails to disclose each and every element recited in independent claims 2 and 62, and therefore, *McPherson* fails to anticipate claims 2 and 62. Further, claims 32-36 are also in condition for allowance over *McPherson* at least because each of these claims depend from allowable claim 2, and claims 63-70 are also in condition for allowance over *McPherson* at least because each of these claims depend from allowable claim 62.

Claim Rejections under 35 U.S.C. § 103 (a)

The Patent Office maintains the rejection of claims 2, 32-36 and 62-70 under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 2,210,916 to Kenyon et al. (hereinafter *Kenyon*) in view of U.S. Patent No. 5,931,196 to Bernardi et al. (hereinafter *Bernardi).* The Patent Office takes the position that *Kenyon* discloses the claimed invention except for the use of a rotary multi-way valve, and that *Bernardi* teaches such a valve. Therefore, the *Office Action* states that it would have been obvious to one having ordinary skill in the art to substitute the *Bernardi* valve shown in Figure 1 in place of the *Kenyon* valve shown in Figure 2 to provide more effective control of the aircraft actuating fluid.

Kenyon discloses a differential pressure follow-back device operable with a time lag that eliminates the need for a gyroscope responsive to angular velocity of an aircraft. Figure 1 depicts the device, which includes a relay valve 25 connected to a pick-off valve shown in Figure 2. The pick-off valve comprises a semicircular segment 13 enclosed in a housing 18 and rotatably mounted about a shaft 14 (col. 2, lines 24-35). The housing 18 includes ports 21, 22

that are normally closed to an equal extent by the segment 13 (col. 2, lines 36-38). Upon relative tilting of the aircraft and gyroscope (enclosed in casing 1), the segment 13 will uncover the ports 21 and 22 to varying extents, resulting in a rise in pressure in one pipe 24 leading to relay valve 25, and a fall in pressure in the other pipe 26 leading to relay valve 25 (col. 2, lines 43-49).

In operation, as long as the aircraft maintains its proper attitude, no relative movement occurs between the housing 18 and the segment 13 of the *Kenyon* pick-off valve (col. 3, lines 26-29). However, if one wing is depressed, the housing 18 will rotate with respect to segment 13, resulting in an immediate differential pressure being established in the pipes 24, 26 to move the piston 27 of the relay valve 25. This will cause pressure to build in one compartment of chamber 30 and drop in the other compartment. Therefore, the pick-off valve shown in Figure 2 of *Kenyon* is a pressure-sensitive, diaphragm driven valve designed to direct pressure to one side or another of the relay valve 25 through pipes 24, 26.

Bernardi teaches a bypass valve 10 for use in water treatment systems. The valve 10 is designed to connect an untreated water source to a water softener device, which in turn is connected to plumbing fixtures for use of the treated water (col. 1, lines 12-15). The valve body 12 includes service inlet and outlet ports 30, 28, respectively, and valve inlet and outlet ports 36, 34, respectively (col. 3, lines 23-43). The valve body 12 also has a pair of blending ports 46 that allows for the introduction of untreated water into the service inlet 30 (col. 3, lines 59-63). An elongated spool 16 is positioned within the valve body 12 for rotation therein between a service position and a bypass position. The spool 16 is provided with a block end 98 to engage a mechanism to rotate the spool 16, such as a handle 100 (col. 4, lines 55-60). Curved lands 52, 56 on the spool define flow passages between the valve inlet port 36 and the service outlet port 28, and between the service inlet port 30 and the valve outlet port 34, respectively (col. 4, lines 13-34). Figure 3 shows the spool 16 in the service position wherein flow is permitted through passages 78, 80 formed by the curved lands 52, 56. As shown in Figure 2, a bypass passage 136 is located on the spool 16 opposite the curved lands 52, 56 and provides fluid communication from the service inlet port 30 to the service outlet port 28. In the bypass position, service ports 28, 30 are closed off from the valve ports 34, 36 (col. 5, lines 47-61).

Claims 2 and 32-36

Applicants respectfully submit that the combination of *Kenyon* and *Bernardi* does not establish a *prima facie* case of obviousness as to pending claims 2 and 32-36. According to MPEP 2142, three basic criteria must be met to establish a *prima facie* case of obviousness:

> First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, and not based on applicant's disclosure.

Even assuming for the sake of argument that the combination of *Kenyon* with *Bernardi* is proper (without conceding such), Applicants submit that no *prima facie* case of obviousness has been established with respect to pending claims 2 and 32-36 at least because the *Kenyon* and *Bernardi* references, either alone or in combination, fail to teach or suggest all of the claim limitations. In particular, these references fail to teach or suggest a valve comprising a body, a selective interrupter, a bonnet connected to the body and in contact with the selective interrupter, an arm extending through the bonnet and connected to the selective interrupter, and an actuator movably connected to the arm. Neither of these references discloses a bonnet, arm and actuator combination according to claim 2. Thus, at least for these reasons, Applicant respectfully submits that independent claim 2 and claims 32-36 that depend therefrom are not obvious in view of the combination of *Kenyon* and *Bernardi*.

Claims 62-70

Even assuming for the sake of argument that the combination of *Kenyon* with *Bernardi* is proper (without conceding such), Applicants submit that no *prima facie* case of obviousness has been established with respect to pending claims 62-70 at least because the *Kenyon* and *Bernardi* references, either alone or in combination, fail to teach or suggest all of the claim limitations. In particular, this combination neither teaches nor suggests a hollow cylindrical selective interrupter positioned inside the body for rotation therein. The Patent Office takes the position that

Bernardi shows an actuator for a "selective interrupter" 12, 16 in Figure 1, and the valve body, which is part of the selective interrupter, is hollow. In response, Applicant respectfully submits that independent claim 62 recites a body and a hollow cylindrical selective interrupter positioned inside the body for rotation therein. Thus, independent claim 62 recites the body and the selective interrupter as two separate elements. The *Bernardi* bypass valve 10 also discloses a separate body 12 and spool 16 rotatably mounted within the body 12. However, instead of a hollow cylindrical selective interrupter as recited in claim 62, the *Bernardi* spool 16 comprises a spool end 50, a first curved land 52, a central spool portion 58 with a plurality of slots 60, a second curved land 56, and a spool end 54. Similarly, instead of a hollow cylindrical selective interrupter as recited in claim 62, the *Kenyon* pick-off valve includes a solid semicircular segment 13 rotatably positioned within the housing 18. Thus, neither the *Bernardi* spool 16 nor the *Kenyon* segment 13 constitutes a hollow cylindrical selective interrupter positioned inside a body for rotation therein according to claim 62. Accordingly, for the foregoing reasons, Applicant respectfully submits that independent claim 62 is not obvious in view of the combination of *Kenyon* and *Bernardi*. Further, claims 63-70 are also in condition for allowance over the combination of *Kenyon* and *Bernardi* at least because each of these claims depend from allowable claim 62.

CONCLUSION

Consideration of the foregoing amendments and remarks, reconsideration of the application, and withdrawal of the rejections is respectfully requested by Applicant. No new matter is introduced by way of the amendment. It is believed that each ground of rejection raised in the *Office Action* dated January 11, 2006 has been fully addressed. If any fee is due as a result of the filing of this paper, please appropriately charge such fee to Deposit Account Number 50-1515 of Conley Rose, P.C., Texas. If a petition for extension of time is necessary in order for this paper to be deemed timely filed, please consider this a petition therefore.

If a telephone conference would facilitate the resolution of any issue or expedite the prosecution of the application, the Examiner is invited to contact the undersigned at the telephone number given below.

Respectfully submitted,

Date: JULY 11, 2006

Shannon W. Bates
Reg. No. 47,412

ATTORNEY FOR APPLICANTS

CONLEY ROSE, P.C.
5700 Granite Parkway, Suite 330
Plano, Texas 75024
Telephone: (972) 731-2288
Facsimile: (972) 731-2289